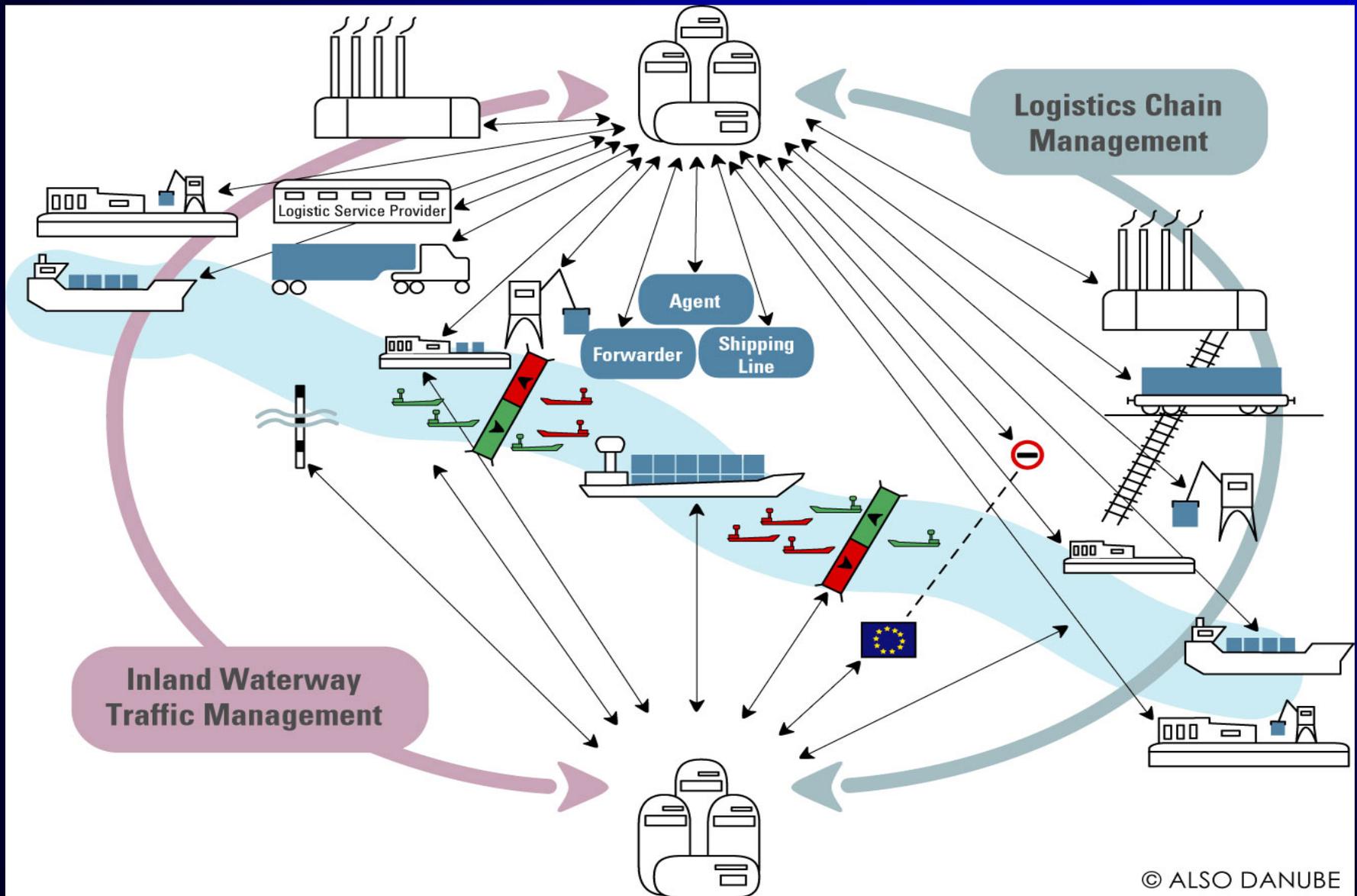


Overview of SmartRivers 2006 Report

**--- Folding Inland Waterways
into the Global Supply Chain ---**

**Arno Hart
RNO Group**

Integrated Logistics Chain Management



© ALSO DANUBE

What is SmartRivers?



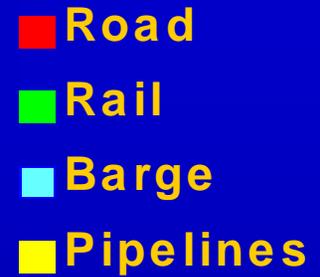
The European Network



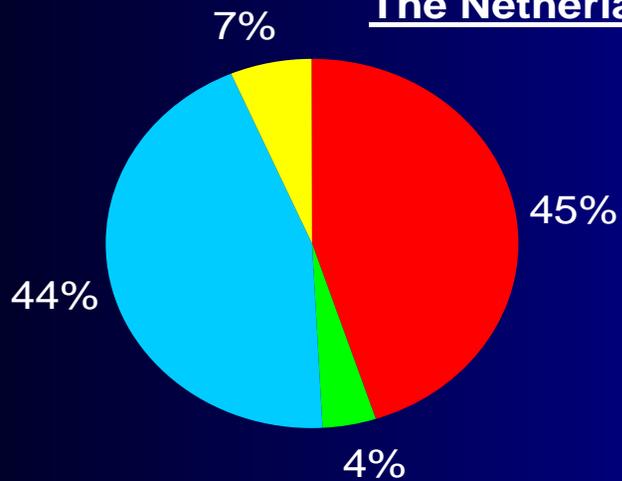
Slide courtesy of European Federation of Inland Ports

Modal Split of Total Cargo Transport

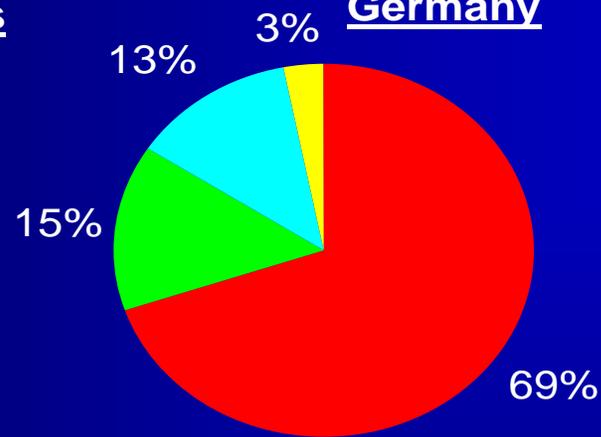
5 EU examples



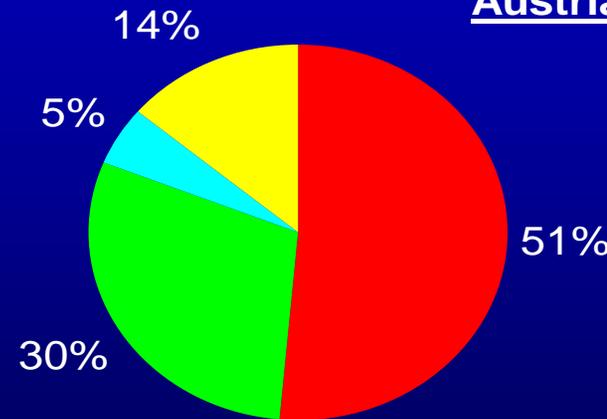
The Netherlands



Germany

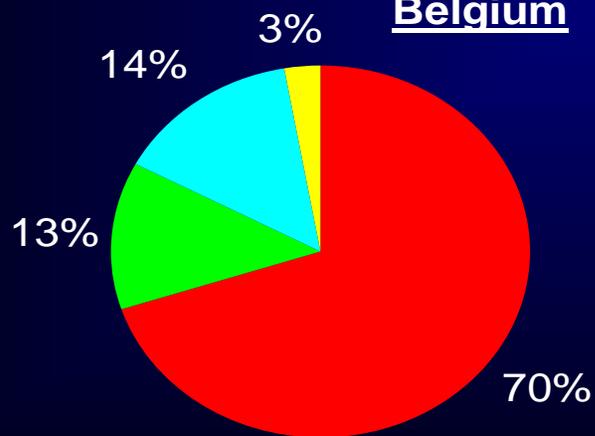


Austria

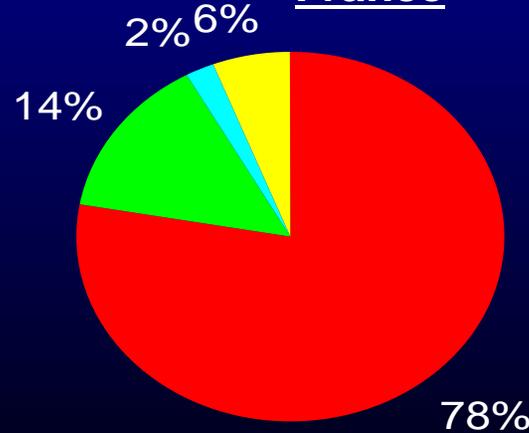


Eurowide - 6.5% water

Belgium



France



EU - Statistics 2004

Institutional Framework

Euro Wide

- Inland Navigation Europe
- Research & Development
 - Subsidies (Marco Polo)
- Equal competition/competitiveness

National

- Development agencies
- Maintenance of locks
 - Dredging

Corridors/Axis

- International treaties along main waterway
 - Mannheim Accord – The Rhine
 - Belgrade Convention – Danube

Regions/Cities

- Operate ports/nodes
 - Vienna
 - Brussels
 - Mannheim

Container-on-barge Services are Viable and Sustainable

Container-on-barge services have existed almost as long as the container trade itself has been in existence, predominantly in Europe and in China/Hong Kong. Container-on-barge services are also in existence in the United States, particularly in the northwest, the Gulf Coast and along the eastern seaboard.

International Gateway Port

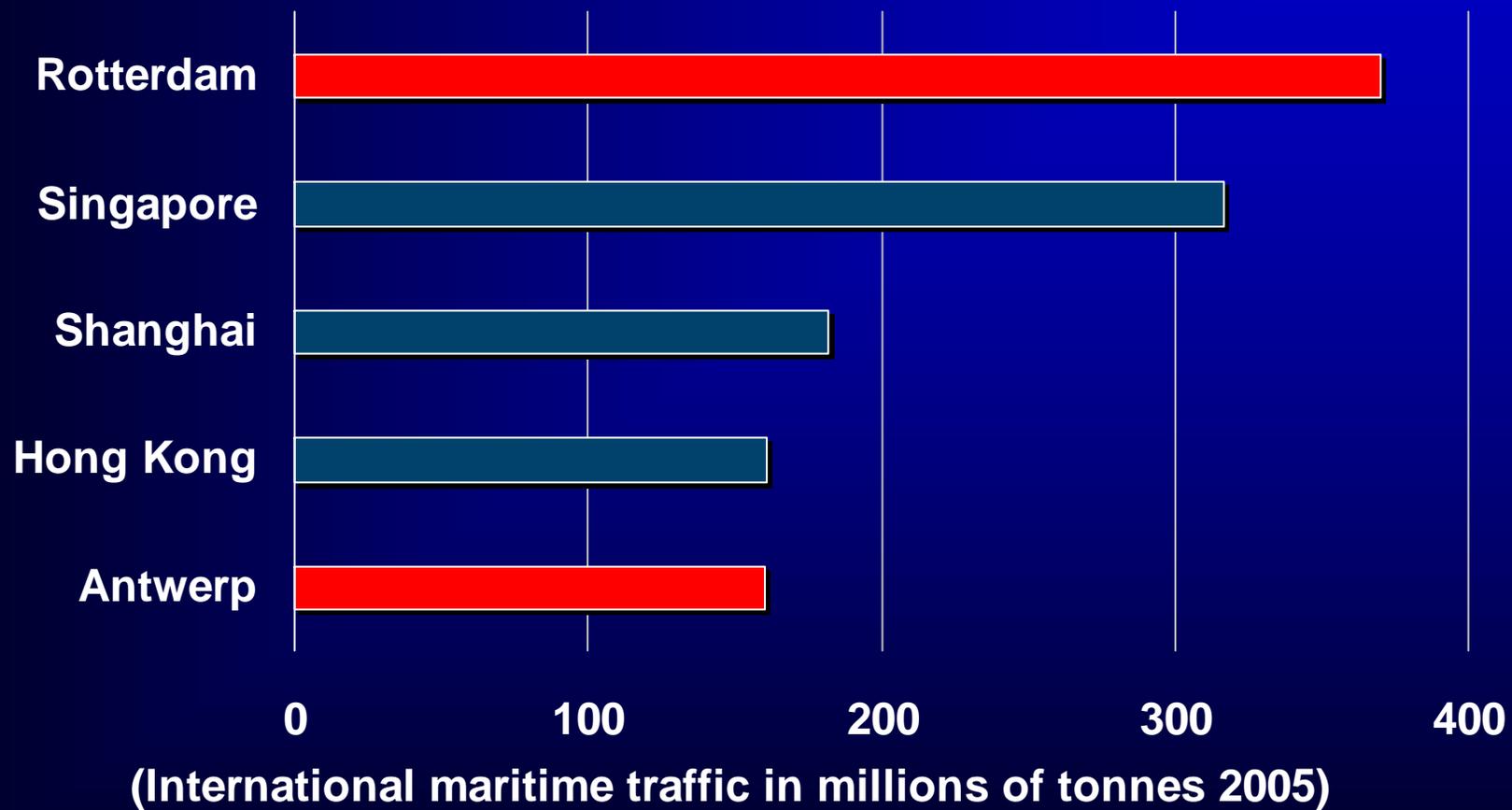
The most successful container-on-barge examples have at least one major international container gateway seaport at the mouth of the waterway. The international gateway is the critical node between the domestic inland container barge services and the international container ship services to major offshore container trade markets.

The Rhine\Scheldt\Seine Network

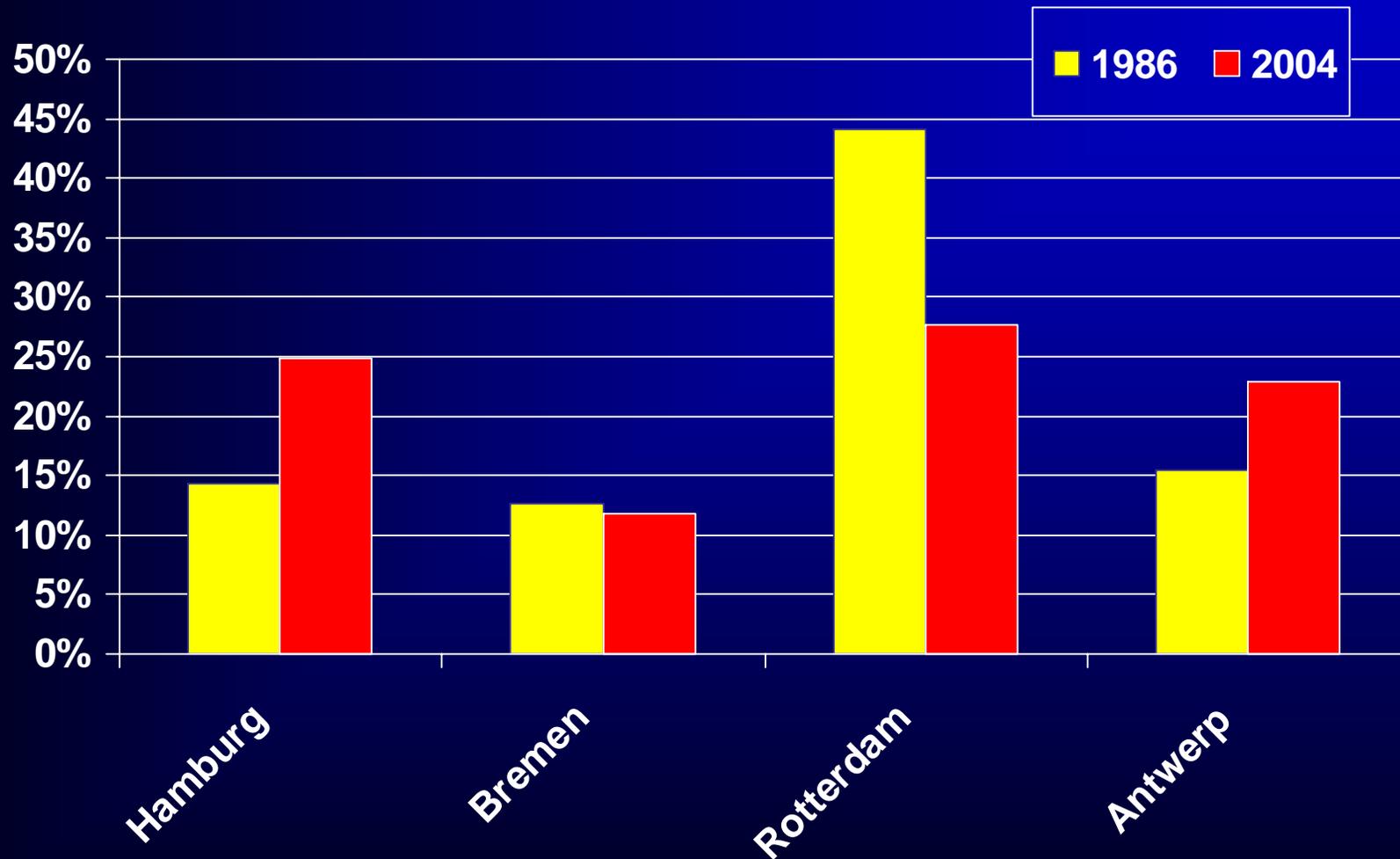


Slide courtesy of European Federation of Inland Ports

2 of the Top 5 World Ports



Main European Ports: Evolution of Market Shares (Total Container Trade)



Inland Mode Shares at the Port of Rotterdam

million tons

	barge	rail	pipe	road	total
liquid bulk	49.8 39%	1.6 1%	63.6 51%	11.6 9%	126.6 43%
dry bulk	77.4 86%	4.1 5%	0.0	7.9 9%	89.4 30%
containers	14.2 33%	6.8 16%	0.0	22.1 51%	43.1 15%
conv. cargo	2.2 6%	1.3 3%	0.0	34.2 91%	37.7 13%
	143.6 48%	13.8 5%	63.6 21%	75.8 26%	296.8 100%

Mode Shift Tactics

**Tactical approach
for Rotterdam....**

**Leases for
Port Tenants**

Modal Shift

- % of tonnage on waterways

Revenue Potential

- # of Ships calling at port

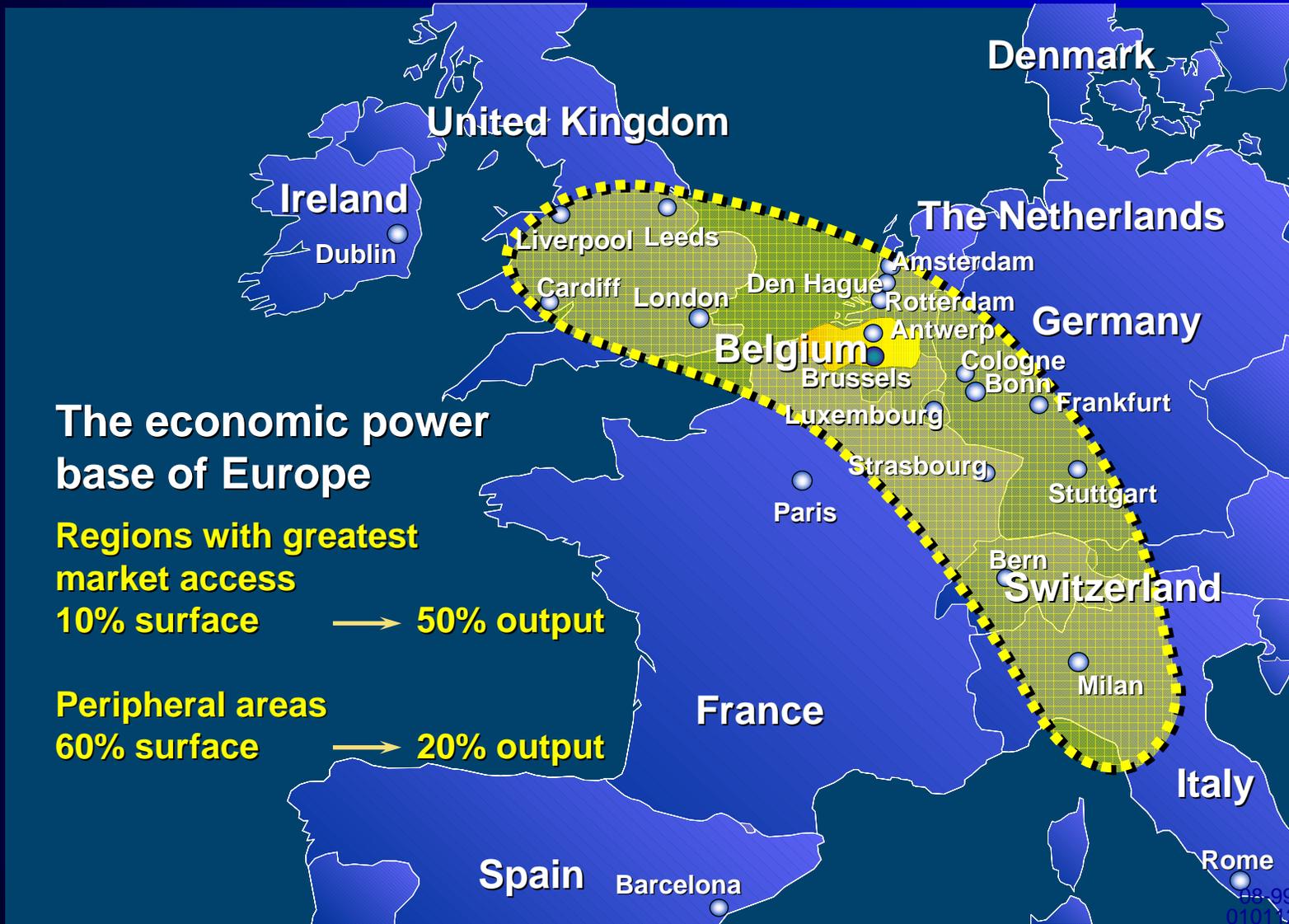
Economic Development

- # of jobs created

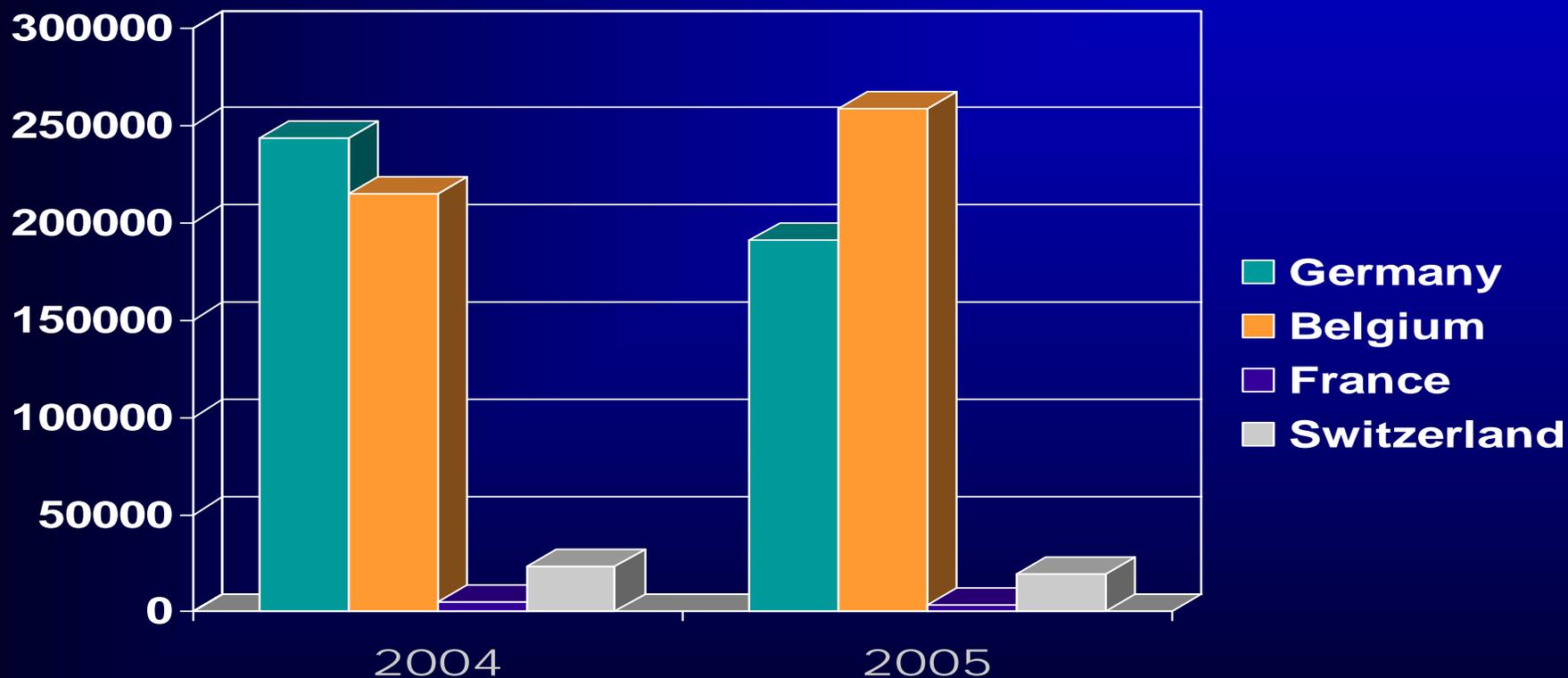
Significant Concentrations of Upstream Economic Activity

Container-on-barge services are sustainable only if there are significant existing or potential volumes of international maritime containers moving between the requisite international gateway port and inland markets. The first tier-inland markets are typically adjacent to or within close proximity to a navigable waterway.

The European "Banana"



R'dam's Inland Container Markets



Number: x Container

The Importance of Scale

In order for the waterways to compete and provide the requisite levels of service and reliability to the container markets, it is important to focus on those market segments where there is significant scale. Scale is also critical in terms of attaining measurable and real benefits to congestion and the environment.

Overview of COB on Rhine

Highest COB densities are on....

Rhine River System

35% mode share

- Along the Rhine Corridor

3 Million TEU's

- Wide range of commodities

US military – 1st customer

- Most secure mode
- Civilian shipments for military
- Barge op's b-hauled empties
- S. Germ FF's b-hauled exports
- Full commercial service

Inland Waterway Densities (1997)



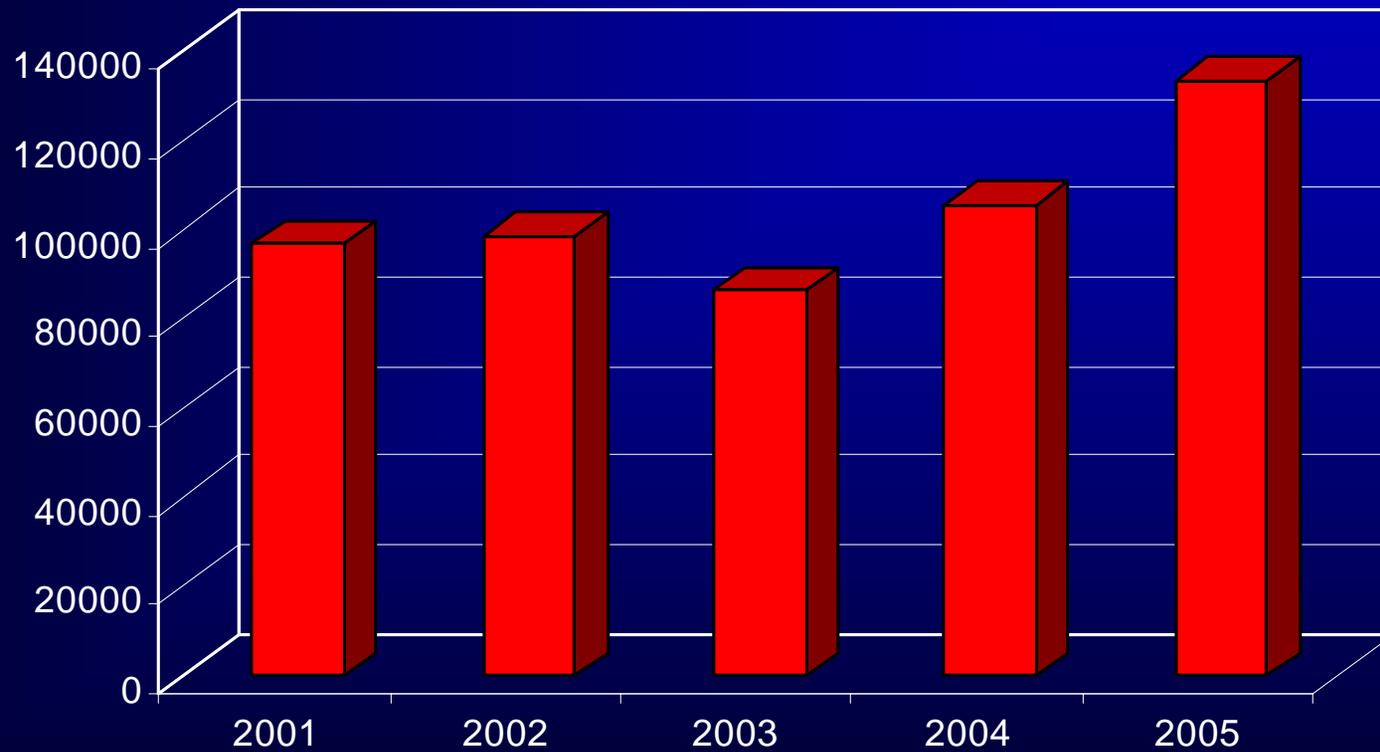
Slide courtesy of Port of Mannheim

Port of Mannheim

- Rhine-Neckar:
European Metropolitan
Region
- Hinterland Port
- 11,310,000 m²



Throughput Containers (TEU) Port of Mannheim



Slide courtesy of Port of Mannheim

Manheim Overview

- **26 Hours between Manheim and Rotterdam**
 - 800kms, no locks
- **First containers moved in 1968**
 - US military's civilian cargo
- **Commercial container cargo followed**
 - 24 million people in larger Neckar/Rhine region
 - Industry – BASF plant largest in world, 37k employees
- **Typical vessel carries 150-200 boxes**
 - Can carry any kind of cargo
 - Larger ones are dedicated container barges

Container Terminal Mühlau Docks



- **30% of COB arrive/leave by rail (Spain, Switzerland)**
 - **On-dock**
 - **500m trains, 20 cars, single stack**

Slide courtesy of Port of Mannheim

Container Terminal Neckar River



- **Ship-to-ship transfer**
 - Neckar allows 2-high stacks
 - Rhine allows 3-high stacks



Climate Change

Global warming is undermining....

**Inland Water
Transport
Sustainability**

Declining rainfall/snow

- Lowering water level

Optimum draft

- 2 meters (6.5 ft)

Reduce barge efficiencies

- 60% of normal load factor

Victim of Own Success

**Growth has
Flattened....**

**Container Traffic
Volumes**

Gtwy Ports Push Mode Shift

- No dedicated warf/dock space

Terminal Operators/Carriers

- Want density per barge

Barge Operators

- Prefer smaller frequent loads
- Fuel and charter rates up

Reliable, Rapid & Scheduled Services are a Prerequisite

The conditions and characteristics of the waterway system have to support a rapid and scheduled service that is reliable. These include depth, minimal locks, and manageable distances. Policies should support the development of faster and lower-cost vessels that are specifically designed and built to serve the marine container market.

**The Lower Mississippi is an open river with no lock structures,
allowing larger tows moving more than
80,000 tons**



Slide courtesy of Ingram Barge Company

6-barge Push Unit in Long Formation



Slide courtesy of Port of Rotterdam

Motorship / Push Barge Combination



Slide courtesy of Port of Rotterdam

RNO

A Lifestyle



Innovations in IWT Container Transport



Slide courtesy of Port of Rotterdam

Innovations in IWT Scale increase



Slide courtesy of Port of Rotterdam

Largest container barge JOWI (510 TEU)



Slide courtesy of Port of Rotterdam



Slide courtesy of Port of Rotterdam

Eroding Modal Market Shares

While inland waterways are an absolutely vital part of the multi-modal system, specifically in the case of bulk/liquid commodities, they are losing market share in the high-service international container and domestic intermodal markets.

Need to Grasp and Market the Opportunities

Passive supply side approaches, relying on trends such as converging transport costs, and internalizing external costs such as congestion and the environment are not achieving needed results. Proactive policies, funding, incentives, promotion, marketing and project development efforts should be targeted at segments of the waterway system that provide the most ideal conditions for operating container-on-barge services.

Danube is not the Rhine

Emerging corridor....

Danube Corridor

Lack of Economic Densities

- Weaker industrial base
- No international gateway

Port of Constantia

- 2004 – 450k TEUs
- 2006 – 1 mil TEUs
- 2010 – 3 mil TEUs

COB is underdevelopment

- Constantia - Vienna

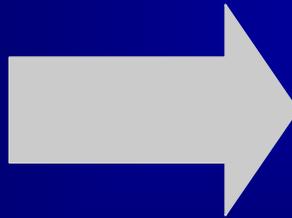
Austrian Navigation Policy

Donau – Verkehrsachse Europas
Zehn-Punkte-Programm zur Stärkung der Donauschifffahrt



Der Donaukorridor verbindet zehn Nationen. Mehr als 100 Mio. Menschen wohnen und leben in diesem dynamischen Wirtschaftsraum. Durch die bevorstehende Integration der Donauländer in die Europäische Union rückt Österreich noch stärker ins Zentrum Europas.

viadonau



**National
Action Plan
Danube Navigation**

NAP Measure Domains

- I Infrastructure
- II Ports
- III Information Systems
- IV Fleet
- V Education & Training
- VI Promotion
- VII Facts & Figures
- VIII New Markets
- IX Grants
- X International Activities

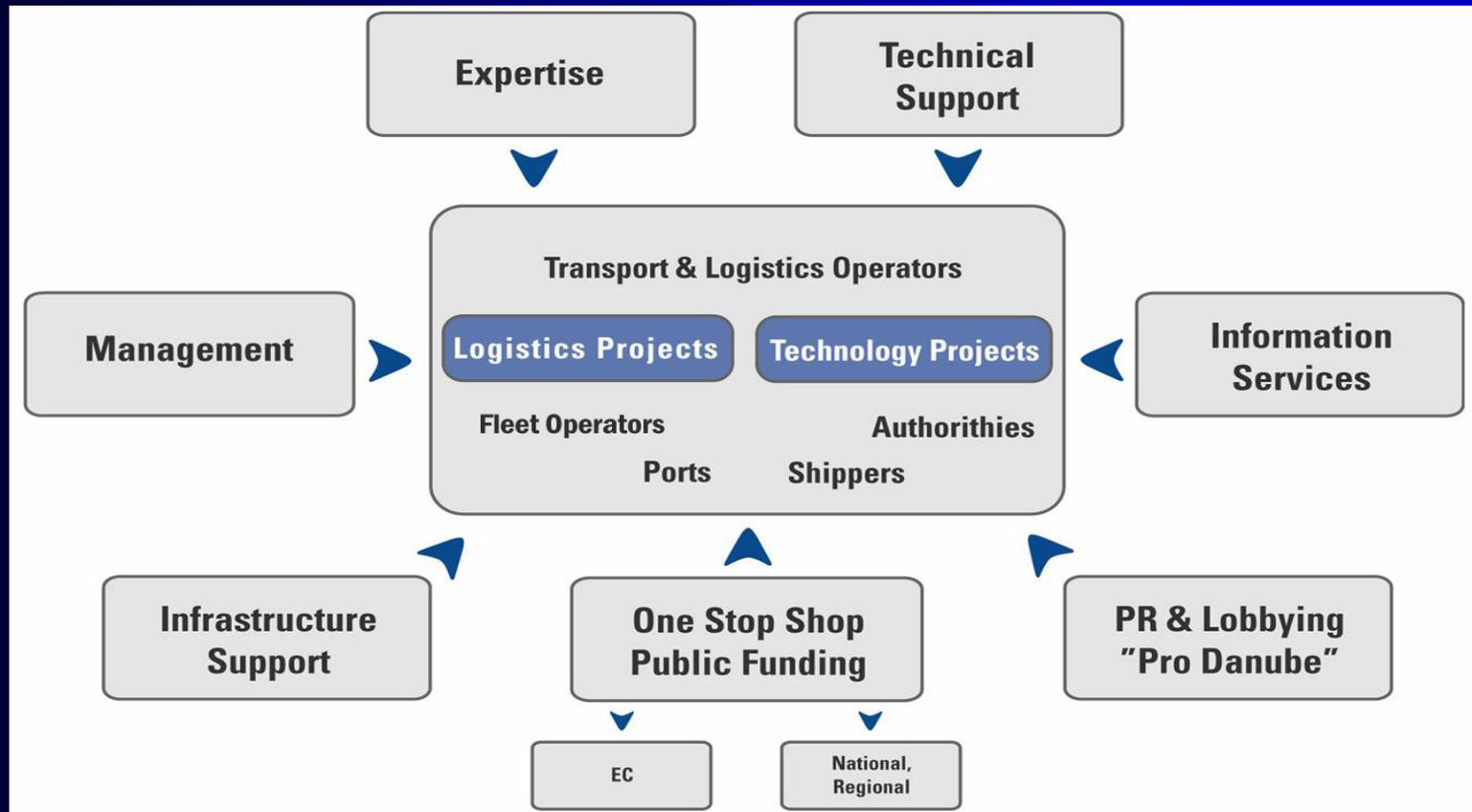


viadonau

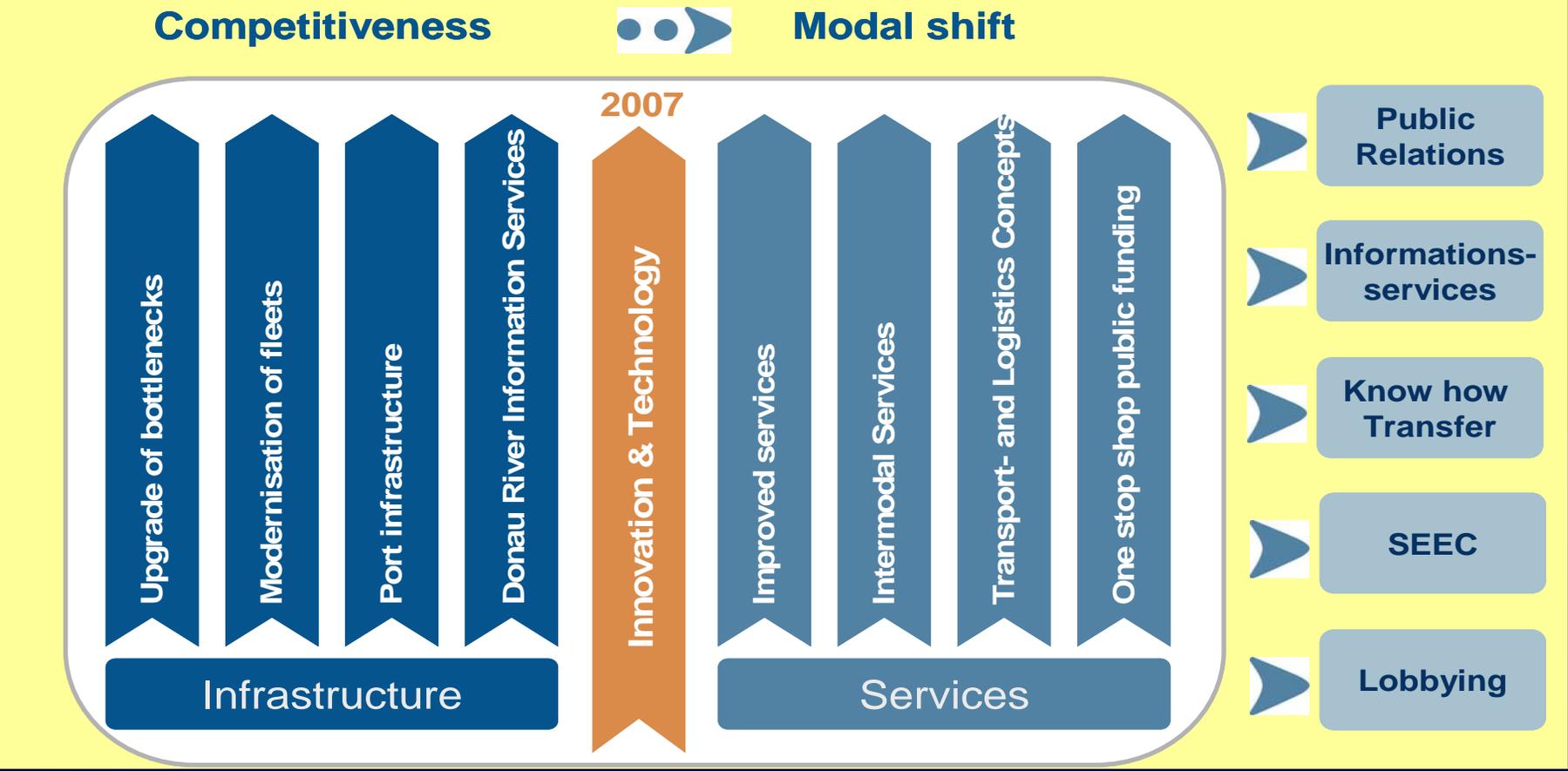
via donau – Österreichische Wasserstraßen-Gesellschaft mbH

- **Responsible for developing traffic on Danube**
- **Based in Vienna**
- **Para-state agency**

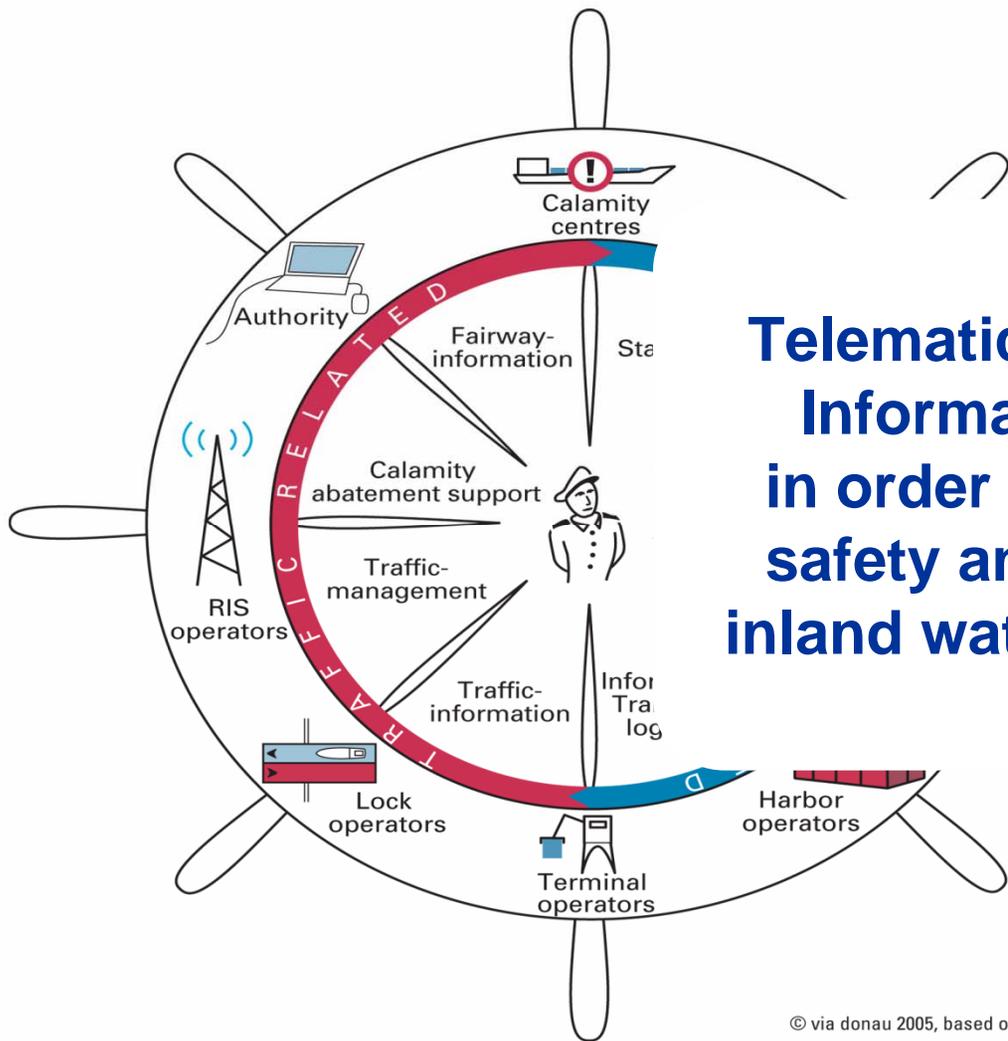
Services of Waterway Development Agencies



Development Strategy for the Danube



RIS Definition



Telematics Systems and Information Services in order to increase the safety and efficiency of inland waterway transport

© via donau 2005, based on PIANC RIS Guidelines 2004

Cost of RIS

50% Paid by EU

**RIS
Project
Development
Cost**

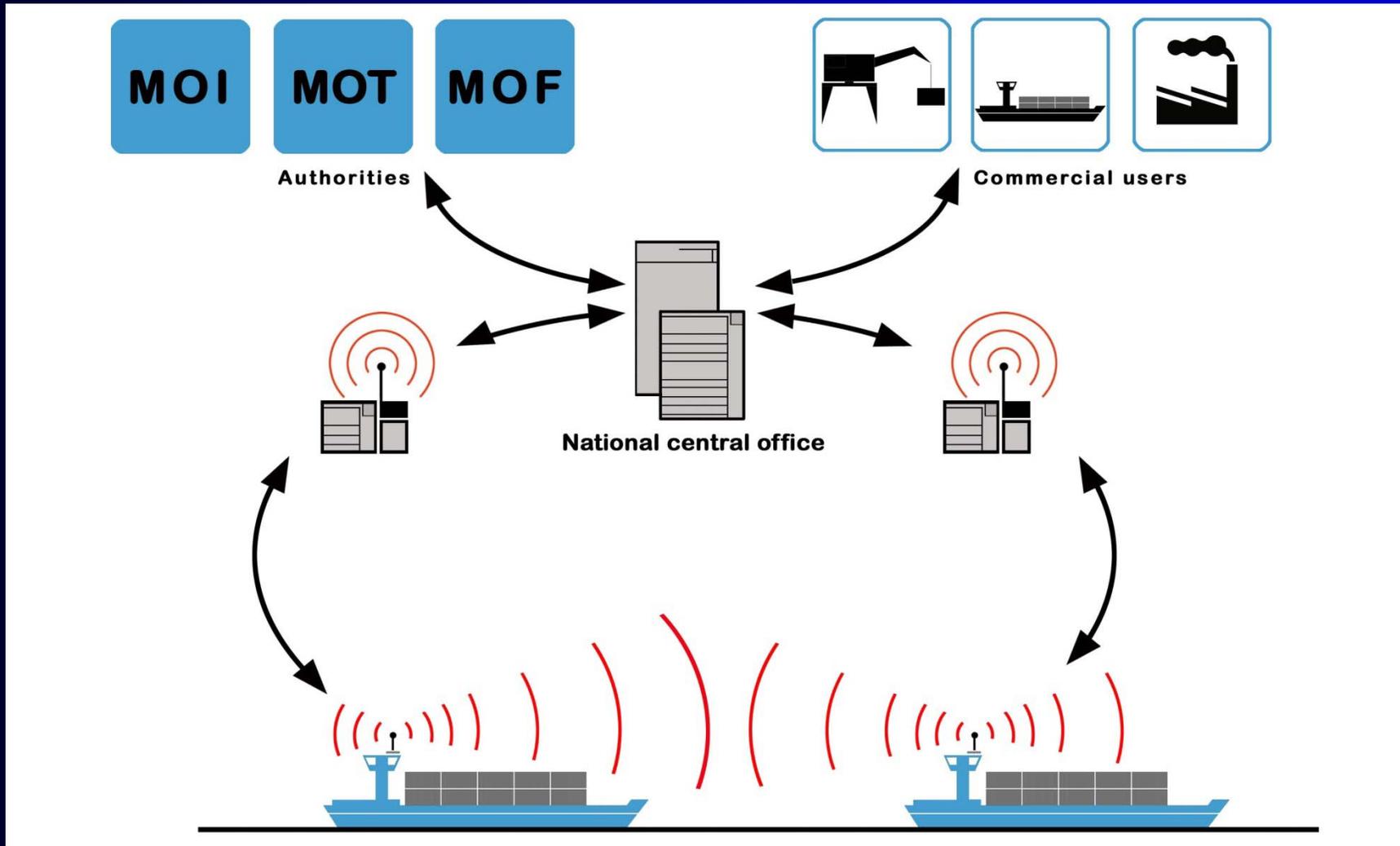
DoRIS

- Cost for Danube – E8.5 Mill

EU Wide

- E255mill estimated

RIS Concept



RIS Implementation in EU

- **RIS in Austria**
- **RIS in Hungary**
- **RIS in Serbia**
- **RIS in Romania**

Subsidies and Incentives

Policies, incentives and subsidies are an important tool toward supporting and developing a start-up container-on-barge to a break-even and financially viable level of operation. Incentives and subsidies are most successful where the market dynamics are at a significant level of scale.

MARCO POLO Programme (2003-2006):

To support intermodal services and alternatives to road-only transport until commercial viability

- Objective: shift international increase in road freight off the road (12 bill. tkm/year in EU-15)
- 2003-2006, budget of 102 M€
- Risk funding, business-driven
- All segments of international freight (except air)
- Services only; no research, studies or (core) infrastructure

Marco Polo Award Criteria

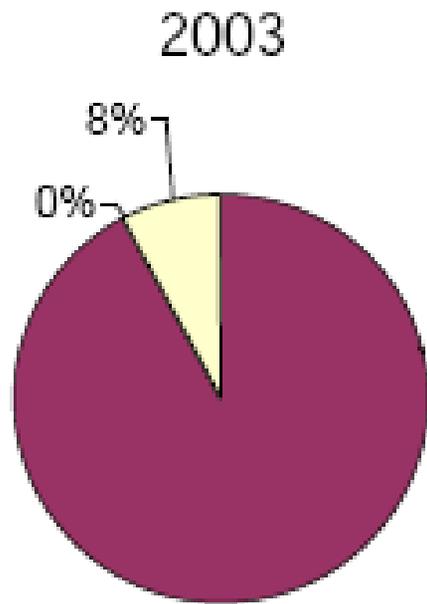
Modal Shift Action	Catalyst Action	Common Learning Action
40 Quantity of freight shifted	40 Innovative approach	30 Improvement of co-operation, know-how and dissemination
30 Credibility and viability	30 Credibility and viability	30 Credibility and methodology
30 Environmental benefits	20 Environmental benefits	30 Innovative approach
	10 Dissemination plan	10 Environmental benefits
Avoidance of unacceptable distortion of competition		
Justification of financial request		

Marco Polo Call for Proposals

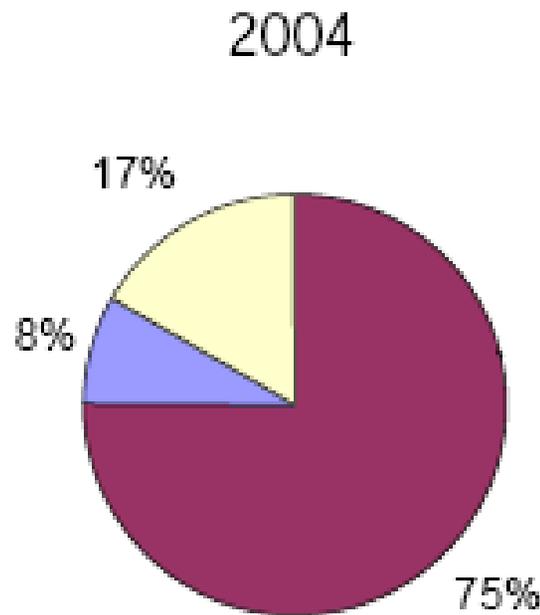
	2003	2004	2005
Committed Budget (in M€)	13	20	22*
Received Proposals	92	62	63
Eligible Proposals	87	59	60
Concluded Contracts	13	12	16*
Freight to be shifted (in billion tkm)	12.4	14.4	10.0*
Environmental benefit (in M€)	204	324	254*
External costs saved (per € subvention)	15.7	15.9	11.7*

* under negotiation

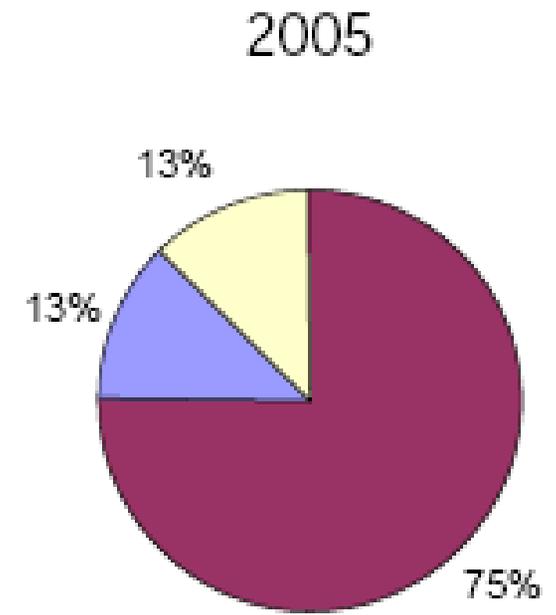
Marco Polo Projects by Action



n = 13



n = 12



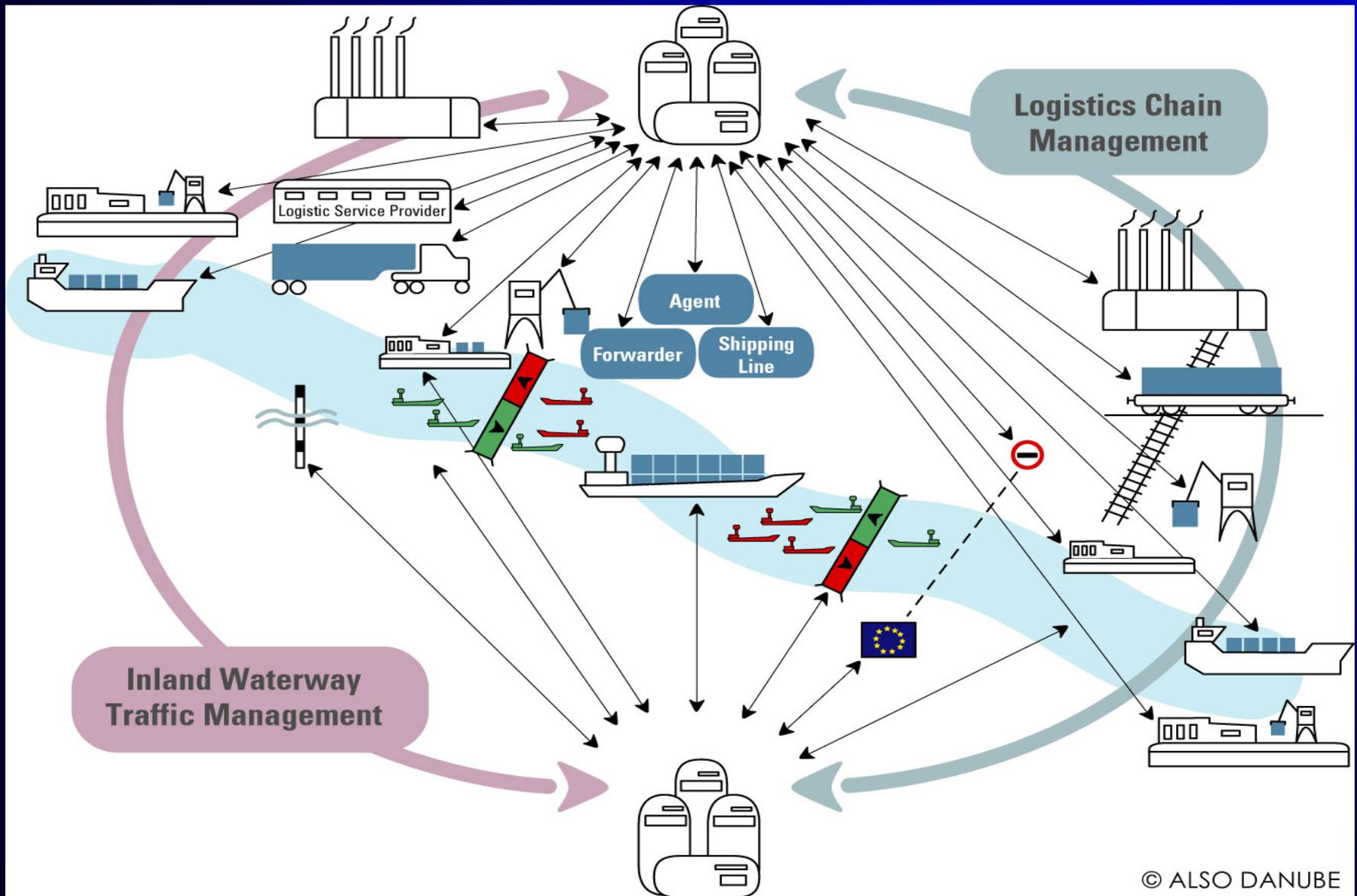
n = 16

■ Modal Shift Actions ■ Catalyst Actions ■ Common Learning Actions

Marco Polo: Summary of Progress

- ▶ no generalities – case by case analysis needed
- ▶ large majority of projects on track and growing to be viable
- ▶ waterborne projects general on-target, rail projects with more challenges (bottlenecks, market demand, quality)
- ▶ 4 (of 25) projects with serious problems
 - 2 contracts terminated due to high losses/ bankruptcy
 - 2 services have not yet started
- ▶ actual modal shift slightly less than forecast

Integrated Logistics Chain Management



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EUROPEAN SHIPPERS COUNCIL



“Focus on reliable, high quality supply chains for industry and trade”

Shippers requirements

- **Reliable services (capacity, transittimes, quality of vessels)**
- **Competitive freight rates**
- **Environmental friendly mode of transport**

Conclusions

**Successful
Container
on Barge**

Industrial densities

International gateway

Short hauls (hours not weeks)

Gov't support/innovations

Vessel development

- Cost, applicability, speed

Supply side has relied on:

- Convergence of transportation costs
- Internalizing externalities

Results in Mode Share Decline

Inter-Related System



Slide courtesy of ViaDonau

Thank You